

DRUG USE INCIDENCE RECORDED IN A MIDWESTERN
EMERGENCY DEPARTMENT

A Thesis Presented to the
Department of Nursing
College of Pharmacy and Health Sciences
Drake University

In Partial Fulfillment
of the Requirements for the Degree
Master of Science in Nursing

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June 1995

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DRUG USE INCIDENCE RECORDED IN A MIDWESTERN
EMERGENCY DEPARTMENT

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ABSTRACT

Orem's conceptual framework of nursing was utilized as a basis for this study of drug use incidents. The purpose of this study was to describe drug use incidents in a midwestern hospital (MWH) emergency department and to compare some of that data with DAWN and MINI-DAWN data from 1992. A retrospective review of 151 patient admissions to MWH emergency department with the diagnosis of drug abuse, drug overdose, or drug dependency during 1992 was conducted. Incidents involving alcohol alone were not included. Analyses of data showed more female than male clients were involved in drug overdose; the mean age of males was 6-18 years while the mean age of females involved in drug use incidents was older at 30-54 years of age. Most drug incidents presented to the emergency department between 1600-1959 hours and involved alcohol in combination with other drugs. There were significantly more incidents of marijuana and amphetamine use at MWH than were reported to DAWN and significantly fewer incidents of cocaine and heroin. There were significantly more incidents of marijuana and acetaminophen use at MWH than were reported to MINI-DAWN. This study provides a profile of the drug use client at MWH which may be useful to nurses to anticipate and care for the client, implementing the nursing system described by Orem as best meeting the needs of the client.

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ACKNOWLEDGMENTS

I would like to thank Marion Hemstrom, D. N. Sc., R. N., C. S., Associate Professor, Drake University, for her advise and continued support in helping me with this study. I would like to thank Mary Spracklin, R.N., M. S. N., and Tom McGuire, M. S. W., for serving on my thesis committee.

CHAPTER ONE

Introduction

Overview of the Problem

Drug use and problems caused by drug use are probably as old as humankind (Ray & Ksir, 1990). Drug use involves consumption of alcohol and other drugs in a nonmedical manner. The Institute for Health Policy (1993) reports more deaths, illnesses and disabilities from drug use than from any other preventable health condition; of the two million U.S. deaths each year, more than one in four is attributable to alcohol, illicit drug or tobacco use. This places a major burden on the health care system where nursing is actively involved in all phases of care for the drug use client.

Efforts to understand and deal with the resultant problems of drug use has inspired research, theorizing, model formulation, and many treatment modalities. Historically, several ways of thinking about drug use have influenced today's perceptions, attitudes, and ways of dealing with clients of drug use. Margaret Bean (as cited in Robak, 1991) identified the moral model, which characterized the drug user as being responsible for both the problem and the solution. In that model the drug user needed motivation or will power to stop.

In contrast, Hester and Miller (as cited in Robak, 1991) identified the temperance model, based on the philosophy that

alcohol, the drug itself, was dangerous. Alcohol was the cause of alcohol related problems. Jellinek (1952) introduced the concept of phases of alcohol addiction and was instrumental in promoting the medical model of alcoholism. Jellinek (1960) considered alcoholism a disease but acknowledged that hypotheses about the nature of the disease, psychological, allergic, nutritional, biochemical, endocrinological, or neurological, varied widely. Brinkman et al. (1982) did not hold the individual accountable for the problem, but stressed that skills must be learned to overcome the problem. Galanter (1993) proposed a psychological and pharmacologic perspective with a network of support recommended for effective therapy.

Along with the theories there is a staggering amount of data available on current nonmedical drug use from both public (Office of National Drug Control Policy, 1994) and private sources (Institute for Health Policy, 1993). The overall pervasiveness of alcohol consumption is well known. Therefore, incidents of alcohol when used alone were not considered in this study. Only incidents of alcohol used in combination with other drugs and the nonmedical use of drugs were investigated. This study describes drug use incidents occurring at a private midwestern hospital (MWH) emergency department and compares some of that data with state and national data.

The emergency department nurse will gain information from this study regarding the characteristics of the drug user and thus be better prepared to anticipate and care for the particular needs of the drug use client. The information can be extended to other nursing personnel who provide care to the drug use client.

Nursing is involved in drug use prevention, acute care, long term supportive interventions, and education. Nurses are involved in care for the drug use client in the emergency department in the acute phase. Many drug use clients are admitted to the intensive care unit where nurses continue acute care. As the client stabilizes, care by nurses is continued on a medical unit, mental health unit or drug treatment center. Upon discharge from the hospital nurses are often involved in home health care and other follow up care. Knowledge identifying age and gender of drug use clients, temporal patterns of drug use, and current types of drugs used is needed to provide nurses with information which will facilitate holistic care of drug use clients.

In 1992 emergency departments in 21 metropolitan areas and 89 other areas, referred to as the National Panel, reported drug abuse episodes to the Drug Abuse Warning Network (DAWN), which is sponsored by the Substance Abuse and Mental Health Services Administration (SAMHSA), through

the U.S. Department of Health and Human Services. There were 503 reporting hospitals to DAWN in 1992. The data were obtained from a statistical sample of hospitals and were weighted to be representative of all such episodes that occurred in 24 hour, short stay, nonfederal hospitals located throughout the contiguous United States. Weighted estimates were established by using numeric coefficients to make estimates from a sample to a population. Incidents reporting alcohol consumption alone were not entered into DAWN data. DAWN data included alcohol used in combination with other drugs and drug abuse episodes.

There were no reporting hospitals to DAWN from Iowa in 1992. In 1990 federal funds were awarded to the Iowa Board of Pharmacy Examiners to develop an Iowa Drug Abuse Warning Network (MINI-DAWN) and the Iowa Drug Abuse Monitoring System (IDAMS). Iowa hospital emergency departments voluntarily submitted data on drug abuse episodes to the Iowa Board of Pharmacy Examiners in 1992, which were compiled into the MINI-DAWN data base. MINI-DAWN data included alcohol in combination with other drugs and other drug episodes. Data were not collected on alcohol when used alone.

Several terms used in this study sound similar but have distinct meanings and need to be identified. These terms are

drug abuse, drug abuse episodes or incidents, drug mentions, drug overdose, and drug dependence. Drug abuse is the nonmedical use of a substance for psychic effect, dependence or suicidal gesture, which includes the use of prescription drugs inconsistent with medical practice and the use of over the counter drugs contrary to labeling. A drug abuse episode or incident is a reported emergency department admission that involves drug abuse. Drug mentions are all substances identified in a drug abuse episode, therefore, there may be several drug mentions in one drug abuse episode. All drug mentions are reported to DAWN and MINI-DAWN as drug abuse. The term drug overdose, in contrast, is routinely used by emergency department physicians to classify problems characteristic of excessive consumption of a drug. Drug dependence is the physical or emotional need for a drug.

Hospital medical record personnel utilize medical diagnoses to place cases into categories of disease conditions. The International Classification of Diseases (ICD-9) is commonly used to categorize disease conditions into a numerical system. This study utilized the ICD-9 coding system to retrieve drug use data from hospital records. The ICD-9 codes were utilized to retrieve data on drug dependency (code # 304.10-304.93), drug abuse (code # 305.20-305.93), and drug overdose (code # 960.0-978.90, 980.1-987.9, 989.0-989.90) (Puckett, 1994).

The terms used in drug use research are often confusing. The means of data collecting and reporting are diverse, thus conclusions are hard to compare. The DAWN and MINI-DAWN data are not consistent in establishing how the reporting facilities are allowed to participate, in the age categories used, and in some of the drug use categories and drug groups used. This makes comparing information difficult. Information concerning drug use is available but because of the inconsistencies the information is confusing and not easily available in a usable form to the emergency department nurse.

There is a need for usable drug use information to be readily available to the emergency department nurse who provides first line intervention to the client experiencing the physical effects of drugs and support to the client and family in crisis situations. The nurse in the crisis setting may assist the client and family in problem identification and resolution. Since crisis may precipitate change the nurse may be in an ideal position to educate and to refer the client to appropriate agencies for further assistance. The knowledge from this study will help the nurse with intervention, education, crisis intervention and referrals.

Overview of Theoretical Basis of the Study

Despite increased expenditures and educational efforts drug abuse continues to be a growing problem. A goal for

nursing is to provide clients with care, information, and education to allow them to make knowledgeable decisions about their health. Nursing can be instrumental in enhancing this self-care. Within the care delivery system, nursing can support, develop, and promote the client's greatest potential for improved health. Dorothea Orem's Self Care Theory (Orem, 1985) provides guidance for enhancing the health of the individual by promoting effective care of self. This study is based on Orem's self care nursing framework.

Significance to Nursing

The prevalence of drug use in American society is a concern to all health care providers. One to two percent of all emergency room visits are a direct result of drug overdose (Stein, Bonanno, O'Sullivan, & Wachtel, 1993). Nurses are often the first providers clients see. Knowledge of temporal patterns can help predict when drug overdose admissions to an emergency department are most likely to occur (Morris, 1987) and strengthen suspicions of possible drug use in suspected but not admitted drug use cases. Drug use clients are known to utilize denial as a defense mechanism, knowing demographics and temporal patterns of drug use may alert the emergency department personnel of possible drug use.

Drug use patterns change over time. The emergency department nurse needs to be familiar with current patterns in

type of drug used in drug abuse, drug overdose, and drug dependency. Knowledge of current drugs used allows the emergency department nurse to anticipate toxicity and treatment of drug use clients. Familiarity of action of the drug and most effective treatment allows the nurse to work more efficiently thus decreasing intervention time. Timely intervention is crucial in reducing absorption and toxicity.

Having knowledge of drug use specific to MWH in contrast to national drug use data can be useful to drug treatment centers in setting up programs to fit the needs of local clients. Nurses who are responsible for initiating treatment programs for clients are better prepared to seek funding and provide programs when specific client information is available.

Purpose of this Study

The purpose of this study was to compare drug use data from a private midwestern hospital (MWH) with DAWN and MINI-DAWN data for the year 1992. Data specific to MWH for 1992, which were not comparable to DAWN and MINI-DAWN data, were gathered and presented as well. The following drug use variables were examined: age groups, gender, temporal incidence, and type of drug(s) used.

Research Question

This descriptive retrospective study addressed the following research questions. What was the incidence of drug use emergency department admissions in a midwestern hospital (MWH) during 1992? What was the relationship between drug use incidents, age, gender, temporal patterns and drug type at MWH during 1992? What was the relationship between DAWN, MINI-DAWN, and MWH drug use incident data during the year 1992?

Definition of Terms

Conceptual Definitions

Drug Use: Non-medical use of drugs for drug abuse, drug overdose, or drug dependence.

Age: Age is the time a person has existed since birth.

Gender: Gender refers to a person's sex, either male or female.

Temporal Patterns: Time related variables which include seasons of the year, phases of the moon, days of the week, and time of entry.

Drug Type: Type of drug used in incidents of drug abuse, drug overdose, and drug dependency.

Operational Definitions

Drug Use: Drug use was identified by the emergency department physician diagnosis and drug screen results, when available.

Age: The age of the client was the age stated on the emergency department record and was placed in one of the following categories: 6-18 years, 19-29 years, 30-55 years, and 55-99 years.

Gender: Gender was determined by the recorded "F" or "M" on the emergency department record.

Temporal Patterns: Seasons of the year was determined by the admission month entry on the emergency department record. The month was placed in a seasonal category as follows: spring was March, April, May, summer was June, July, August, autumn was September, October, November, and winter was December, January, and February.

The phases of the moon were determined by eliciting the month and date of admission to the emergency department from the emergency department record. The admission date was placed into a phase of the moon category. The new moon phase was the precise day of the new moon, one day before and one day after. The full moon phase was the precise day of the full moon, one day before and one day after as determined

by the 1992 calendar. The remaining days of the month were categorized as other phases.

The emergency department admission day, was determined by the emergency department record, and placed in a day of the week category of Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, and Saturday. Each day began at 0000 hours and ended at 2359 hours and was determined by the admission time stated on the emergency department record.

The time of entry to the emergency department was the time of admission to the emergency department as stated on the emergency department record. The time noted was placed within the four hour blocks: 0000-0359, 0400-0759, 0800-1159, 1200-1559, 1600-1959, 2000-2359.

Drug type: Drug type was determined by the medical diagnosis or history as recorded on the medical record and on the drug screen results, when available.

CHAPTER TWO

Review of Literature

Conceptual Basis of the Study

The use of a conceptual framework provided the researcher with a way of viewing phenomenon. Nursing of drug use clients can be conceptualized using Dorothea Orem's conceptual framework of nursing. Orem's theory is based on three premises (a) self care, (b) self care deficit, and (c) nursing systems (Orem, 1985). Each of these premises will be presented.

Self Care

Self care is the practice of activities that individuals initiate and perform on their own behalf in maintaining life, health, and well being. When self care is effectively performed it contributes in specific ways to human integrity, functioning, and development. The ability to care for ones' self is called self care agency. The self care agency meets self care demands by using valid or positive methods. In order for self care agency to meet self care demands self care requisites must be met.

Self care requisites may be universal requisites, developmental requisites, or health deviation requisites. Universal self care requisites are associated with life processes and the maintenance of the integrity of human structure and functioning. Developmental self care requisites are either

universal requisites that are associated with a developmental process or are requisites associated with a particular condition or event. Health deviation self care involves illness, injury, or disease. Some health deviation self care requisites include seeking appropriate medical assistance, effectively carrying out medically prescribed measures, and being aware of and regulating deleterious effects of prescribed medical care measures.

The ability to engage in self care is largely determined by age, developmental state, life experience, sociocultural orientation, health, and available resources. Normally adults care for themselves. Infants, children, the aged, the ill, and disabled require complete care or assistance with self care activities.

Self Care Deficit

Self care deficit exists when self care abilities are less than those required for meeting self care demands. When a self care deficit exists nursing can assist with self care. Nursing care can involve: acting for another, guiding another, supporting another, providing an environment that is supportive, or teaching another.

Nursing Systems

Three nursing systems exist to meet self care requisites: wholly compensatory, partly compensatory, and supportive educative. In the wholly compensatory system the individual is unable to provide any self care, the nurse provides all self care requisites. In the partly compensatory nursing system the nurse and the individual work together to meet self care requisites of the individual. In the supportive educative role the individual provides all self care while the nurse provides help in decision making, behavior control, and acquiring knowledge and skills.

Drug use clients are not practicing self care because there is lack of life maintenance, health, or well being. This occurs on an ongoing basis as well as during acute phases when there is an even greater self care deficit. Self care agency is lacking in providing some or all self care requisites in a valid manner. When drug use occurs, self care requisites are not adequately met. The requisites may not be met on a universal, developmental, or health deviation level, on all three levels, or any combination of these levels.

Nursing is involved when self care requisites are not met. When the drug use client is comatose the nurse functions at a wholly compensatory level. The nurse may function in a partly compensatory manner with nonacute clients and in a

supportive educative manner during the recovery phase, when working with the nonacute client, and when working with the family as an extension of the client. The supportive educative system may also be used for the general public and those at risk for potential drug use.

Review of Pertinent Literature

Drug use is a cause for medical attention in the emergency department. Soslow (1981) reported that 1.7% of all emergency department visits at The Memorial Hospital in Worcester, Massachusetts was a result of drug overdose. DAWN (1994) listed a weighted estimate of total emergency department visits in the contiguous U. S. in 1992 as 85,944,389 visits. There was a weighted estimate of 433,493 drug abuse episodes listed. Which indicated 0.50% of all emergency department visits in 1992 were related to drug abuse. Which means an estimated one in every 200 emergency department visits in the contiguous U.S. involved drug abuse episodes in 1992. Drug use admissions influence nursing practice in the emergency department because of aggressive treatment of drug overdose cases, patient and family crisis intervention, risk of injury to client, family, and caregiver, and extensive time required for proper placement of the client. Nursing care can be facilitated in the emergency department and other areas by increasing knowledge about (a) age of drug use client,

(b) gender of drug use client, (c) temporal patterns of drug use, and (d) type of drug used. The following is a review of pertinent literature from the United States published within the past five years in regard to these four areas, when no studies were found within five years in a particular area studies were utilized from prior years.

Age of Drug Use Client

Clients of all ages are involved in drug use. Previous studies of drug use reveal conflicting information in regard to age. Information gathered both from sources other than DAWN material and information utilizing DAWN material will be reviewed.

Information from specific institutions has been obtained by various researchers without utilizing DAWN material. Stern et al., (1991) gathered data at Massachusetts General Hospital over a 3 month period from October 15, 1984-January 15, 1985, on patients admitted to the Emergency Department or Acute Psychiatric Service with a diagnosis consistent with intentional or accidental drug overdose. A total of 177 drug use visits were studied. The mean age of drug users was 28 years of age. Twenty three percent of drug users were found to be 19 years of age or less while eighteen percent were between ages 13-19 years.

Other researchers report somewhat similar findings. Harsh and Holt (1988) reviewed records of all patients admitted to the Milwaukee Regional Medical Center from 1985-1986 and studied those who ingested antidepressants in attempted suicide. The mean age of the clients who took an overdose of antidepressants was 33 years with a range of 13 years. Stein et al. (1993) studied changes in patterns of drug overdose by obtaining records of drug use clients from Rhode Island Hospital for the years 1968, 1979, and 1989. The mean age of clients in 1979 was 34.3 years (with a range of 14 years) and 35.6 years (with a range of 14.1 years) in 1989, no age was given for 1968. Blanc, Jones, and Olson (1993) studied records from two urban hospitals from October 1, 1989-December 31, 1990 comparing four methods of drug use reporting. The median age for drug use victims entering the hospitals was 32 years.

Harlow (1991) studied patterns of prescription psychotherapeutic (tranquilizers, antidepressants, barbiturates, and combinations) drug mortality in Texas from 1976-1986. Data were collected from death certificates filed with the Texas Department of Health. The mean mortality age for both men and women from prescription drugs ranged from the mid-thirties to the early forties; however, it was higher for women in all years except one. Male mortality rates tended to be

higher in the younger age categories, while female mortality rates tended to be higher in the 40 and above age categories. Women over age 40 appear to be at highest risk of overdose from antidepressants.

The 1992 DAWN data divided drug abuse episode clients into 4 major age categories. The age category and percent of drug episodes reported for each category were (a) 6-17 years (11.1%), (b) 18-25 years (22.3%), (c) 26-34 years (30.9%), (d) 35-99 years (35.7%), and (e) unknown (.2%) (U.S. Department of Health and Human Services, 1994). The 1992 MINI-DAWN drug abuse episode clients were divided into 4 categories but the ages in each category differed from DAWN. The category and rounded percent of drug episodes reported were (a) 6-18 years (21%), (b) 19-29 years (36%), (c) 30-55 years (39%), and (d) 55-99 years (4%) (Iowa Board of Pharmacy Examiners, 1992).

DAWN material has been utilized for some research. Kopstein (1992) presented statistics on drug use emergencies reported to the DAWN system from 1989-1990. The ages with the highest reported episodes for all drugs used was 18-44 years. Colliver and Kopstein (1991) studied cocaine related trends in emergency department drug use episodes reported to DAWN from January 1987 through December 1989. There was

an increase in age from 29.1 years in the first half of 1987 to 30.3 years in the last half of 1989.

"Emergency room drug episodes" (1993) used DAWN data collected from December 1991 to December 1992 and identified that emergency department visits for drug use increased in two age categories. In those aged 26-34, emergency department visits were 121,400 in 1991, and were 133,500 in 1992. In those aged 35 and over emergency department visits were 130,000 in 1991, and 154,600 in 1992. The Office of National Drug Control Policy (1994) utilized DAWN information to report ages 26-34 had the highest visits to emergency departments for cocaine use in 1992. Cocaine emergencies doubled among those aged 35 and older between 1988-1992, the rate increased 47% from 17,300 mentions to 25,400 mentions. This age group was noted to be the fastest growing group seeking medical services at the emergency department for drug related problems.

Gender of Drug Use Clients

The gender of drug use clients is important for nurses to know. Knowing which gender to expect in regard to different drugs used, in setting up programs to help clients, in soliciting financing for developing programs, and knowing target populations for education and prevention counseling can help in planning emergency department staffing as well as patient

care. Two studies investigated differences in relation to gender and attempted suicide from drug use. Frierson and Lippmann (1990) studied black male and female suicide attempts from January 1976 through August 1987 who were referred to the University of Louisville School of Medicine for psychiatric consultation. The most common method of suicide attempt by both groups was drug overdose, which was chosen by 88% of women and 57.3% of men. Harsh and Holt (1988) used the Milwaukee Regional Medical Center records from 1985-1986, to ascertain the use of antidepressants in attempted suicide. Thirty percent of the cases involving overdose ingestion had taken antidepressants. Sixty seven percent of those who overdosed on antidepressants were female and 33% were male. Females who overdosed on antidepressants outnumbered males by approximately two to one.

Two studies found gender differences when mortality and drug use were examined. Harlow (1990) investigated rates of mortality from narcotics and cocaine overdose as an indicator of patterns of drug abuse in Texas from 1976-1987. He found the mortality of men who overdose on narcotics and cocaine to be three times higher than women. Harlow (1991) used the same data to establish patterns of prescription drug mortality. He found women to be at higher risk of abuse and misuse of some prescription drugs. Women had a higher risk

for overdose mortality from antidepressants than men, while women over 40 years of age were at highest risk of overdose mortality from antidepressants.

Derby, Hershel, and Dean (1992) identified all persons who filled at least one prescription for an antidepressant between July 1, 1979, and December 31, 1987, at Group Health Co-operative of Puget Sound who were recorded as having died because of suicide. Among the 35 suicides in women, 43% were secondary to drug overdose. Among the 45 suicides in men, 16% were secondary to drug overdose.

Three studies looked at drug use in general and provided information on the gender of drug use clients. Stein et al. (1993) compared changes in drug overdose patterns for clients 18 years of age and older in Rhode Island Hospital for the years 1968, 1979, and 1989. Seventy six percent of those who overdosed were women in 1968, 65% in 1979, and 52% in 1989. Blanc et al. (1993) studied the detection of poisoning and drug overdose at the level of hospital based reporting by each of four surveillance measures which were ICD-9 coding, supplemental poisoning external cause coding, Poison Control Center reporting, and reporting through the DAWN system. The study took place at two urban hospitals from October 1, 1989-December 31, 1990. Two thirds of the cases were found to be male and the number one drug used was opiates.

Kopstein (1992) utilized DAWN data for 1989-1990. The rate of all drug related emergencies per 100,000 population for males was 805.6 per 100,000 population, and for females was 922.6 per 100,000 population. Many female drug related emergency mentions during that time were tranquilizers and sedatives, while males were much more likely to use cocaine.

The rate of cocaine related cases (Kopstein,1992) for males aged 18-29 was 87.3 per 100,000 population, and 92.1 per 100,000 population for ages 30-44. The rate of cocaine related cases for females during that time for ages 18-29 was 58.9 per 100,000 population, the rate for females 30-44 was 39.3 cases per 100,000 population. Colliver and Kopstein (1991) studied cocaine abuse. DAWN data was utilized to study cocaine abuse from January-June 1987 through July-December 1989. Men were 2 times more likely than women to come to the emergency department with cocaine related episodes.

DAWN material for 1992 indicated the sample hospitals reported a total 147,506 emergency department drug abuse episodes and 249,707 drug mentions, with the application of sampling weights, these lead to the estimate of 433,493 drug abuse episodes and 751,731 drug mentions in the eligible hospitals. Fifty one percent of the clients were male and 49% were female. Female clients were more likely to come to the emergency department because of overdose (67% were female,

41% were male). Cocaine was reported in connection with 37% of episodes involving male clients compared to 18% of episodes involving females. Heroin/morphine was mentioned in 16% of episodes involving males and 6% of those involving females. There was a similar pattern with marijuana/hashish in which 8% of the episodes involved males and 3% involved females. Drugs more commonly reported in episodes involving females included alprazolam (Xanax) (5% female vs. 2% male), Aspirin (6% female vs. 2% male), and acetaminophen (10% female vs. 4% male) (U.S. Department of Health and Human Services, 1994).

The total number of drug abuse episodes reported to MINI-DAWN in 1992 was 1740. Males were involved in 672 (39%) of the episodes. Females were involved in 1,068 (61%) of the episodes (Iowa Board of Pharmacy Examiners, 1992).

Temporal Patterns of Drug Use

Few studies exist on the temporal aspects of drug use. Neither DAWN nor MINI-DAWN collect data of a temporal nature. Stern et al. (1991) collected data over a three month period from October 1984-January 1985 at Massachusetts General Hospital. All patients admitted to the emergency department or patients admitted to the Acute Psychiatric Services with intentional or accidental drug overdose were identified. Stern et al. (1991) found 72% arrived during the

evening or night shift, 41% between 1600 hours and midnight, 31% between midnight and 0800 hours. Soslow (1981) found the peak arrival time was between 2200 hours and midnight.

Morris (1987) used all DAWN records for 1983 from the University of Illinois Emergency Room. Information was collected on 264 drug overdose admissions to the emergency department. The peak drug overdose admission time was 1820 irrespective of age, sex, or race. The incidents increased for males in early August and for females in late May. The incidents were highest for a combination of male and female admissions in late July. White males were more likely to be involved with drug overdose on Monday and Friday, females showed no preference for day of week in regard to drug overdose.

Type of Drug Used

Type of drug used by patients is of importance to nursing staff in any emergent situation. The type of drug used is significant in relation to the age of the client, the length of stay in the emergency department, medical complications, disposition of the client, and the nursing process involved in care. The following studies on drug use eliminated all cases which listed alcohol as the only drug used, however, alcohol in combination with other drugs was included.

Stein et al. (1993) studied changes in the pattern of drug overdose. All patients aged 18 years or older admitted to Rhode Island Hospital during 1968, 1979 and 1989 with a discharge diagnosis of drug ingestion, overdose, or poisoning were studied. Barbiturates were the most commonly used drug in 1968. Benzodiazepines were the most commonly used drugs in 1979 and 1989. The second most commonly used drug was acetaminophen in 1979 and tricyclic antidepressants in 1989. In 1979 seventy percent of patients overdosed using a prescribed drug, and in 1989 eighty percent overdosed using a prescribed drug. There were no reported cocaine uses in 1979; in 1989 eleven percent of all patients admitted with drug ingestion used cocaine. One third of the persons entering the facility used two or more drugs in both 1979 and 1989; alcohol was identified as commonly used in drug combinations. One fourth of drugs used were over the counter drugs (acetaminophen, nonsteroidals, and antihistamines) in 1979 and 1989.

Harlow (1991) used patterns of prescription drug mortality as an indicator of drug use in Texas from 1979-1986. Mortality rates from barbiturates declined sharply over the 11 year period. Tranquilizer mortality rates also declined, but at a lesser rate. Antidepressants were found to have a substantial risk potential, particularly for women.

Harsh and Holt (1988) reviewed records of all patients admitted to the Milwaukee Regional Medical Center from 1985-1986 after a suicide attempt. Seventy eight percent of the suicide attempts involved ingestion of substances. Thirty percent of the cases involving ingestion had taken antidepressants. Fifty six percent also ingested alcohol during the suicide attempt. Forty eight percent ingested an antidepressant and one or more other drugs.

Blanc et al. (1993) gathered data on drug overdose and poisoning in relation to four reporting methods from two urban hospitals between October 1, 1989-December 31, 1990. The principal specific poisoning or drug overdose cause was opiates, including both illicit drugs and controlled prescription medications. Other drugs commonly used were cocaine, phencyclidine (PCP), benzodiazepines, antidepressants and acetaminophen. Twenty two percent used a combination of drugs.

DAWN reported the following six drugs most frequently mentioned by emergency departments in 1992. Alcohol, when used alone is not used in DAWN data. The percent of total episodes and the number of mentions follows the drug type. Alcohol-in-combination (32.7%, 141,773 mentions) was the most frequent drug mentioned. Cocaine (27.65%, 119,843 mentions), heroin/morphine (11.07%, 48,003 mentions),

acetaminophen (7.23%, 31,355 mentions), marijuana/hashish (5.54%, 23,997 mentions), Aspirin (4.34%, 18,834 mentions) were the next most frequently mentioned drugs in descending order (U.S. Department of Health and Human Services, 1994).

MINI-DAWN reported six drugs most frequently mentioned in statewide emergency department abuse incidents. The percent of total mentions and the actual number of mentions follows the drug type. Alcohol in combination (31%, 544 mentions) was the most frequently mentioned drug. Tylenol (5.1%, 144 mentions), Aspirin (4.2%, 117 mentions), cocaine (3.9%, 108 mentions), Xanax (3.7%, 103 mentions), Prozac (3.0%, 85 mentions) were the remaining five frequently mentioned drugs in descending order of use (Iowa Board of Pharmacy Examiners, 1992).

Colliver and Kopstein (1991) used DAWN data to study trends in cocaine abuse from 1987-1989. Cocaine related emergency room episodes increased from 16,033 in the first half of 1987, to a three year high of 25,609 in the first half of 1989, and decreased to 22,796 in the second half of 1989. Cocaine was implicated in the most emergencies per 100,000 population for both sexes and all age groups during the time studied.

Kopstein (1992) used DAWN data to study drug abuse related emergency episodes for 1989-1990. The three major

drugs of abuse were cocaine, heroin/morphine, and marijuana/hashish. Cocaine was implicated in the greatest number of the emergency department visits per 100,000 population for both sexes and all four age groups.

The DAWN system reported record levels of cocaine related emergency department visits for 1992. The number of clients seeking entry into emergency departments for cocaine related incidents in 1992 increased 18% over the previous year. In 1991 there were 101,189 cocaine mentions, and in 1992 there were 119,800 cocaine mentions. During the same time heroin mentions rose 34%. In 1991 there were 35,898 heroin mentions, and in 1992 there were 48,003 heroin mentions (Office of National Drug Control Strategy, 1994, "Emergency room drug episodes", 1993, "Drug Emergencies Flood Hospital", 1993).

"Emergency room drug episodes" (1993) reported a 10% rise in emergency room drug episodes in 1992 according to DAWN data. Cocaine mentions increased in almost every demographic category. In 1992 there was a 34% increase in the number of heroin related emergency room visits, from 35,900 in 1991 to 48,000 in 1992. Emergency mentions of hallucinogens such as lysergic acid diethylamide (LSD) remained stable, mentions of PCP increased for the first time since 1988. Marijuana and hashish increased 48% in 1992

(from 16,300 to 24,000). A comparison of DAWN data between 1978 and 1992 indicated drug related visits in 1978 were 319,200, and 433,500 in 1992. Cocaine related visits in 1978 were 1%, and 28% in 1992. Heroin related visits in 1978 were 4%, and 11% in 1992.

Summary

A summary of this literature indicated the adult groups aged 26-34 and 35 and older increased in drug use at a faster rate than any other groups. Females were found to attempt suicide with drug overdose more frequently than males (Frierson & Lippmann, 1990, Harsh & Holt, 1988, Stein et al., 1993). Men were more likely to use illicit drugs than women (Harlow, 1990, Blanc et al., 1993, Colliver & Kopstein, 1991, Kopstein, 1992). Females were more likely to misuse prescription drugs (Harsh, & Holt, 1988, Harlow, 1990, Kopstein, 1992, Derby et al., 1992). The studies further indicated the peak arrival time of drug use clients in the emergency department was from 1800 hours to midnight. Incidents of drug use increased during the summer months. The studies indicated that barbiturates were predominantly used in the 1960s, benzodiazepines and antidepressants were predominantly used in the 1970s and 1980s. The 1990s have had a predominance of cocaine and opiates used in drug use mentions.

CHAPTER THREE

Methodology

Protection of Rights of Human Subjects

Approval was obtained from Drake University Human Subjects Research Review Committee prior to the initiation of this study (see Appendix A). After approval was granted from Drake University, approval was obtained from MWH for collection of the data (see Appendix B). Confidentiality of all information was maintained. Client names and addresses were not used in this study. The medical record number used to obtain pertinent medical records was assigned a code number known only to this researcher thus maintaining confidentiality. Data sheets were stored securely.

Data Collection

This study was a retrospective record review. One hundred percent of the available records of clients aged 6-99 years admitted from January 1, 1992, through December 31, 1992, to MWH Emergency Department with a diagnosis of drug abuse, drug overdose, or drug dependence, as stated on the emergency department record, provided the data set for this study. Those diagnoses implicating alcohol when used alone, were excluded from the study.

Sample

This study utilized the emergency department admission records with a diagnosis of drug abuse, drug overdose, and drug dependence from a midwestern, non-Federal, short stay hospital with a 24 hour emergency department with a yearly emergency department census of approximately 20,000. This midwestern hospital (MWH) is a participating hospital in the MINI-DAWN program.

All available records of clients age 6-99 years admitted to the MWH Emergency Department during 1992 whose diagnosis on the emergency department record was drug abuse, drug overdose, or drug dependence were included in the study. The medical record or microfilm of the medical record was obtained and information gathered from the medical record.

Procedures

After approval to proceed with this study was obtained from Drake University and MWH the medical records with ICD-9 codes of 305.20-305.93, 960.00-978.9, 980.1-987.9, 989.0-989.9, and 304.10-304.93 (Puckett, 1994) were obtained for 1992 from the medical record department at MWH. Age, gender, date of entry, time of entry and drug use type were obtained from the medical record and coded on the drug use Code Sheet developed by the researcher (see Appendix C). The

1992 calendar was consulted to determine the moon phases, seasons of the year, and day of the week. The information was placed in the appropriate column on the drug use Code Sheet.

Statistical Analysis

The mean age of female and male drug use clients who entered MWH emergency department in 1992 was determined. The ratio of female to male drug use admissions was determined. The percentage of drug use incidents at MWH emergency department in 1992 in regard to (a) diagnosis categories, (b) different age categories, (c) female and male admissions, (d) admissions in the seasonal groups, (e) admissions in the moon phases, (f) day of the week admissions, (g) admissions in the daily time block, and (h) type of drugs used was determined.

The chi-square goodness-of-fit test was used to test the distribution of drug use at MWH in 1992 for (a) diagnosis categories, (b) age categories, (c) female and male admissions, (d) seasons of the year, (e) phases of the moon, (f) day of week, and (g) time of admission. The chi-square test of independence was used to determine (a) if there was a difference in age between MWH and DAWN drug users, (b) if there was a difference in age between MWH incidents and MINI-DAWN, (c) gender percentages of incidents at MWH, (d) gender percentages of incidents among the diagnoses groups,

(e) difference between male and female incidents at MWH, DAWN and MINI-DAWN, (f) difference in gender and incidents among the seasons, (g) difference in gender and incidents among the moon phases, (h) difference in gender and incidents among the days of the week, (i) difference in gender and incidents among the time blocks, (j) difference in gender and incidents of specific drug type used, (k) difference in incidents of specific drug used between MWH and DAWN, (l) difference in incidents of specific drug used between MWH and MINI-DAWN in 1992. The results were analyzed at the .05 alpha level.

CHAPTER FOUR

Data Analysis

Descriptive Statistics

One hundred fifty one drug use incidents and 326 drug mentions were recorded in the emergency department at MWH in 1992. Of the 326 mentions, 74 (22%) were illicit drug mentions. Illicit drugs are those drugs that are illegal to possess. One hundred five (32%) were over the counter drug mentions (alcohol in combination was included in this category). Over the counter are those drugs which can be obtained without a prescription and are legal to possess. One hundred forty seven (45%) were prescription drug mentions. Prescription drugs are those obtained only through a pharmacy by medical prescription. Prescription drugs can be obtained illegally. This study did not determine if prescription drugs mentioned were obtained legally.

There were 20,229 emergency department admissions at MWH during 1992, 0.74% of which were related to drug use. This percentage does not include alcohol when used alone and was secured by ICD-9 codes for drug abuse, drug overdose, and drug dependency.

The mean age for drug use clients at MWH in 1992 was 27.2 years. The mean age for females was 27.9 years. The minimum age for females was 7 years and the maximum age

was 72 years. The mean age for males was 26.4 years. The minimum age for males was 7 years and the maximum age was 76 years. Females outnumbered males 1.65 to 1.

Diagnoses Categories

Drug use was divided into three diagnoses of drug abuse, drug overdose, and drug dependency and the percentage of incidents in each diagnosis was established. The percentage of drug abuse incidents was 33.8%, the percentage of drug overdose incidents was 61.6%, the percentage of drug dependency was 4.6% (see Table 1).

Table 1

Diagnosis Categorization of MWH Drug Use Incidents in 1992

Diagnosis	<u>n</u>	% of Incidents
Drug Abuse	51	33.8 %
Drug Overdose	93	61.6 %
Drug Dependency	7	4.6 %

Age Categories

Drug use incidents at MWH in 1992 were categorized by client age. The category age 6-18 years accounted for 33.8% drug use incidents, age 19-29 years accounted for 23.2%, age 30-54 years accounted for 39.7%, and 55-99 years accounted for 3.3%, as shown in Table 2.

Table 2

Age Categorization of MWH Drug Use Incidents in 1992

Age	<u>n</u>	% of Incidents
6-18	51	33.8 %
19-29	35	23.2 %
30-54	60	39.7 %
55 -99	5	3.3 %

Gender

The percentage of female drug use incidents at MWH in 1992 was 62.3%. The percentage of male drug use incidents at MWH in 1992 was 37.7% (see Table 3).

Table 3

Gender Categorization of MWH Drug Use Incidents in 1992

Gender	<u>n</u>	% of Incidents
Female	94	62.3 %
Male	57	37.7 %

Age/Gender

The percentage of drug use incidents according to age and gender was determined for MWH emergency admissions in 1992. Of the 94 female incidents 26.6% were in the 6-18 year age group, 27.7% in the 19-29 year age group, 43.6% in the 30-54 year age group, and 2.1% were in the 55-99 year age group. The male incidents were distributed in the age groups as follows: 45.6% in 6-18 years, 15.8% in 19-29 years, 33.3% in 30-54 years, and 5.3% in 55 or older years, as shown in Table 4.

Table 4

Age/Gender Categorization of MWH Drug Use Incidents in 1992

Age	Female		Male	
	<u>n</u>	% of Incidents	<u>n</u>	% of Incidents
6-18	25	26.6 %	26	45.6 %
19-29	26	27.7 %	9	15.8 %
30-54	41	43.6 %	19	33.3 %
55-99	2	2.1 %	3	5.3 %

Seasonal

The percentage of drug use incidents at MWH in 1992 according to season was determined. There were 29.1% incidents in the spring, 17.9% incidents in summer, 23.8% incidents in autumn, and 29.1% incidents in the winter, see Table 5.

Table 5

Season of the Year Categorization of MWH Drug Use Incidents in 1992

Season	<u>n</u>	% of Incidents
Spring	44	29.1 %
Summer	27	17.9 %
Autumn	36	23.8 %
Winter	44	29.1 %

Moon Phases

The percentage of drug use incidents at MWH was determined in 1992 according to moon phase. There were 7.9% incidents in the new moon phase, 8.6% incidents in the full moon phase, and 83.4% incidents in the other phases (see Table 6).

Table 6

Moon Phase Categorization of MWH Drug Use Incidents in 1992

Phase	<u>n</u>	% of Incidents
New Moon	12	7.9 %
Full Moon	13	8.6 %
Other	126	83.4 %

Day of the Week

The percentage of drug use incidents at MWH in 1992 was determined according to the day of the week. There were 17.2% on Sunday, 13.9% on Monday, 17.2% on Tuesday, 8.6% on Wednesday, 14.6% on Thursday, 11.9% on Friday, and 16.6% on Saturday (see Table 7).

Table 7

Day of the Week Categorization of MWH Drug Use Incidents in 1992

Day	<u>n</u>	% of Incidents
Sunday	26	17.2 %
Monday	21	13.9 %
Tuesday	26	17.2 %
Wednesday	13	8.6 %
Thursday	22	14.6 %
Friday	18	11.9 %
Saturday	25	16.6 %

Time of Admission

The percentage of drug use incidents for 1992 according to time of emergency department entry was determined.

There were 15.2% incidents between 0000-0359 hours, 7.9% incidents between 0400-0759 hours, 8.6% incidents between 0800-1159 hours, 20.5% incidents between 1200-1559 hours, 27.8% incidents between 1600-1959 hours, 19.9% incidents between 2000-2359 hours (see Table 8).

Table 8

Time of Entry Categorization of MWH Drug Use Incidents in 1992

Time	<u>n</u>	% of Incidents
0000-0359	23	15.2 %
0400-0759	12	7.9 %
0800-1159	13	8.6 %
1200-1559	31	20.5 %
1600-1959	42	27.8 %
2000-2359	30	19.9 %

Specific Drugs Used

Drugs mentioned most frequently in drug use incidents in 1992 at MWH by percentage were alcohol in combination (31.8%), marijuana (21.9%), acetaminophen (7.9%), cocaine (7.9%), Tylenol (5.3%), amphetamines (4.6%), and benzodiazepines (4.6%), as shown in table 9. A drug use incident may have involved more than one drug mention.

Table 9

Drugs Most Frequently Mentioned in Drug Use Incidents at MWH in 1992

Drug	<u>n</u>	% of Incidents
Alcohol combined	48	31.8 %
Marijuana	33	21.9 %
Acetaminophen	12	7.9 %
Cocaine	12	7.9 %
Tylenol	8	5.3 %
Amphetamines	7	4.6 %
Benzodiazepines	7	4.6 %

Summary

In 1992, the mean age of drug clients at MWH was 27.2 years. The mean age for females was 27.9 years and the mean age for males was 26.4 years. There was a higher percentage of incidents in the drug overdose diagnosis group than either drug abuse or drug dependency groups. The highest percentage of incidents occurred in the 30-54 year age group. There was a higher percentage of female incidents than male incidents. There was a higher percentage of males in the 6-18 year age group and a higher percentage of females in the 30-54 year age group. There was a higher percentage of incidents in the spring and winter. The lowest percentage of incidents was in the summer. There was nearly an equal percentage of incidents in the new moon and full moon phases. The highest percentages of incidents occurred on Sunday and Tuesday. The lowest occurred on Wednesday. The highest percentages occurred between 1600-1959 hours. The lowest occurred between 0400-0759 hours. The drug with the highest percentage of use was alcohol in combination.

Inferential Statistics

The chi-square goodness-of-fit test was used on some data to determine whether the distribution of cases among the categories of variables differed significantly. The chi-square

test of independence was used on some data to determine if two variables were dependent on each other (Wright, 1986).

Diagnoses Categories

A chi-square test was done to determine if there was a significant difference among the percentage of incidents in drug abuse, drug overdose, and drug dependency groups at MWH emergency department in 1992. The percentages of incidents in the three groups differed significantly, $\chi^2 (2, N = 151) = 73.483, p < .001$. The largest percentage of incidents occurred in the drug overdose category and the smallest was in the drug dependency category (see Table 10).

Table 10

Chi-Square Goodness-of-Fit Test Comparing Diagnosis
Percentages of Drug Use Incidents at MWH in 1992

Diagnosis	<u>n</u>	% of Incidents
Drug Abuse	51	33.8 %
Drug Overdose	93	61.6 %
Drug Dependency	7	4.6 %

Note. $\chi^2 = 73.483$

$N = 151$

$df = 2$

$p < .001$

Age Categories MWH

A chi-square test was done to determine if there was a difference in the percentage of incidents in the age categories of drug use clients at MWH in 1992. The percentages of patients in the four age categories differed significantly, $\chi^2 (3, N=151) = 46.377, p < .001$. The largest percentages of patients were in the 6-18 group and in the 30-54 year group. The smallest percentage of patients was in the 55-99 year group, as shown in Table 11.

Table 11

Chi-square Goodness-of-Fit Test Comparing Age Group
Percentages of Drug Use Incidents at MWH in 1992

Age	<u>n</u>	MWH
6-18	51	33.8 %
19-29	35	23.2 %
30-54	60	39.7 %
55 -99	5	3.3 %

Note. $\chi^2 = 46.377$

$N = 151$

$df = 3$

$p < .001$

Age Group Differences MWH/DAWN

A chi-square test was done to determine if the percentages of drug use incidents for the age groups differed for MWH and DAWN. There was a significant difference in the MWH and DAWN age group percentages of incidents, $\chi^2 (3, N = 432608) = 66.389, p < .001$. The largest difference was found in the 6-17 age group (see Table 12).

Table 12

Chi-Square Test of Independence Comparing MWH and DAWN
Percentages of Drug Use Incidents for DAWN Age Groups in
1992

Age	MWH		DAWN	
	<u>n</u>	% of Incidents	<u>n</u>	% of Incidents
6-17	48	31.8 %	48074	11.1 %
18-25	31	20.5 %	96307	22.3 %
26-34	32	21.2 %	133506	30.9 %
34-99	40	26.5 %	154570	35.7 %

Note. $X^2 = 66.389$

$N = 432608$

$df = 3$

$p < .001$

Age Group Difference MWH/MINI-DAWN

A chi-square test was done to determine if the percentages of drug use incidents for the age groups differed for MWH and MINI-DAWN. There was a significant difference in the MWH and MINI-DAWN age group percentages of incidents, $\chi^2 (3, N = 1890) = 16.759$ $p = .001$. The largest differences were found in the 6-18 year group and the 19-29 year group (see Table 13).

Table 13

Chi-Square Test of Independence Comparing MWH and MINI-DAWN Percentages of Drug Use Incidents in Age Groups in 1992

Age	MWH		MINI-DAWN	
	<u>n</u>	% of Incidents	<u>n</u>	% of Incidents
6-18	51	33.8 %	367	21 %
19-29	35	23.2 %	623	36 %
30-54	60	39.7 %	676	39 %
55 -99	5	3.3 %	73	4 %

Note. $X^2 = 16.759$

$N = 1890$

$df = 3$

$p = .001$

Gender Incidents MWH

The chi-square test was used to determine if there was a difference between the percentage of female and male drug use incidents at MWH in 1992. There was a significantly larger percentage of female drug use incidents,

$\chi^2 (1, N = 151) = 9.066, p = .003$, as shown in Table 14.

Table 14

Chi-Square Goodness-of-Fit Test Comparing Gender Percentages of Drug Use Incidents for MWH in 1992

Gender	<u>n</u>	% of Incidents
Female	94	62.3 %
Male	57	37.7 %

Note. $\chi^2 = 9.066$

N = 151

df = 1

p = .003

Gender/Age MWH

A chi-square test was done to determine if there was a difference in the percentage of gender incidents and the age groups of drug use clients at MWH in 1992. Female client drug use incidents at MWH have a different age distribution than males, $\chi^2 (3, N=151) = 7.955, p = .047$. A smaller percentage of females was in the 6-18 age group (27% of the females vs. 46% of the males). A larger percentage of females was in the 19-29 age group (28% of the females vs. 16% of the males) and 30-54 age group (44% of the females vs. 33% of the males), as shown in Table 15.

Table 15

Chi-Square Test of Independence Comparing GenderPercentages of Drug Use Incidents for Age Groups at MWH in 1992

Age	Female		Male	
	<u>n</u>	% of Incidents	<u>n</u>	% of Incidents
6-18	25	26.6 %	26	45.6 %
19-29	26	27.7 %	9	15.8 %
30-54	41	43.6 %	19	33.3 %
55-99	2	2.1 %	3	5.3 %

Note. $X^2 = 7.955$

$N = 151$

$df = 3$

$p = .047$

Diagnoses Categories/Gender MWH

A chi-square test was done to determine if the percentage of incidents of drug use between female and male at MWH in 1992 differed in the three diagnoses : drug abuse, drug overdose, and drug dependency. There was a significant difference in drug use in regard to gender and the drug diagnoses, $\chi^2 (2, N = 151) = 11.741, p = .003$. Females were less likely to present to MWH with drug abuse than males (29% of the females vs. 42% of the males), but females were more likely to present with drug overdose than males (70% of the females vs. 47% of the males). Finally, females were less likely to present with drug dependency than males (1% of the females vs. 11% of the males), as shown in Table 16.

Table 16

Chi-Square Test of Independence Comparing GenderPercentages of Drug Use Incidents Among Diagnoses at MWH in 1992

Category	Females		Males	
	<u>n</u>	% of Incidents	<u>n</u>	% of Incidents
Drug Abuse	27	28.7 %	24	42.1 %
Drug Overdose	66	70.2 %	27	47.4 %
Drug Dependency	1	1.1 %	6	10.5 %

Note. $X^2 = 11.741$

$N = 151$

$df = 2$

$p = .003$

Gender MWH/DAWN/MINI-DAWN

Percentage of drug use incidents for males and females was compared between MWH and DAWN, and between MWH and MINI-DAWN. There was a significant difference in percentages of drug use incidents for males and females between MWH and DAWN, $\chi^2 (1, N=429,809) = 10.788, p = .001$. MWH had a higher percentage of females than DAWN. There was no difference between MWH percentages and the reported MINI-DAWN percentages (see Table 17).

Table 17

Chi-Square Test of Independence Comparing MWH, DAWN, and
MINI-DAWN Percentages of Drug Use Incidents Between
Females and Males in 1992

Gender	MWH		DAWN		MINI-DAWN	
	<u>n</u>	% of Incidents	<u>n</u>	% of Incidents	<u>n</u>	% of Incidents
Female	94	62.3%	210,051	49%	1068	61%
Male	57	37.7%	219,607	51%	672	39%

Note. DAWN percentages are based on weighted estimates.

$$\chi^2 = 10.788$$

$$N = 429,809$$

$$df = 1$$

$$p = .001$$

Seasonal MWH

A chi-square test was done to determine if there was a difference among the percentages of drug use incidents at MWH emergency department in 1992 for the seasons of the year. There was no significant difference among the percentages of incidents for the seasons of the year, as shown in Table 18.

Table 18

Chi-Square Goodness-of-Fit Test Comparing Season of the Year Percentages of Drug Use Incidents at MWH in 1992

Season	<u>n</u>	% of Incidents
Spring	44	29.1 %
Summer	27	17.9 %
Autumn	36	23.8 %
Winter	44	29.1 %

Note. $X^2 = 5.212$

$N = 151$

$df = 3$

$p = .157$

Gender/Season MWH

A chi-square test was done to determine if there was a difference in percentages of female and male drug use incidents among the seasons of the year at MWH in 1992. The percentage of incidents between female and male admissions did not differ for the seasons of the year (see Table 19).

Table 19

Chi-Square Test of Independence Comparing Gender Percentages of Drug Use Incidents Among Seasons of the Year at MWH in 1992

Season	Females		Males	
	<u>n</u>	% of Incidents	<u>n</u>	% of Incidents
Spring	26	27.7 %	18	31.6 %
Summer	15	16.0 %	12	21.1 %
Autumn	21	22.3 %	15	26.3 %
Winter	32	34.0 %	12	21.1 %

Note. $X^2 = 2.992$

$N = 151$

$df = 3$

$p = .393$

Moon Phases MWH

A chi-square test was done to determine if there were differences between the percentages of incidents at MWH and the percentages of days in each moon phase. The moon phase did not contribute to differences in percentages of incidents at MWH emergency department in 1992 (see Table 20).

Table 20

Chi-Square Test Comparing Moon Phases and Percentage of Drug Use Incidents at MWH in 1992

Phase	<u>n</u>	% of Incidents	% of Days in Moon Phase
New Moon	12	7.9 %	10.3 %
Full Moon	13	8.6 %	10.3 %
Other	126	83.4 %	79.4 %

Note. $X^2 = 1.604$

N = 151

df = 2

p = .448

Gender/Moon Phases MWH

A chi-square test was done to determine if there was a difference in the percentages of female and male drug use incidents among the moon phases at MWH emergency department in 1992. There was no difference in percentages of gender incidents among the moon phases (see Table 21).

Table 21

Chi-Square Test Of Independence Comparing Gender Percentages of Drug Use Incidents Among the Moon Phases at MWH in 1992

Phase	Female		Male	
	<u>n</u>	% of Incidents	<u>n</u>	% of Incidents
New Moon	7	7.4 %	6	10.5 %
Full Moon	9	9.6 %	3	5.3 %
Other phases	78	83.0 %	48	84.2 %

Note. $X^2 = 1.227$

$N = 151$

$df = 2$

$p = .541$

Day of the Week MWH

A chi-square test was done to determine if there was a difference between the percentages of drug use incidents among the days of the week at MWH. There was no difference between percentages of drug use incidents among the days of the week (see Table 22).

Table 22

Chi-Square Goodness-of-Fit Test Comparing Day of the Week
Percentages of Drug Use Incidents at MWH in 1992

Day	<u>n</u>	% of Incidents
<hr/>		
Sunday	26	17.2 %
Monday	21	13.9 %
Tuesday	26	17.2 %
Wednesday	13	8.6 %
Thursday	22	14.6 %
Friday	18	11.9 %
Saturday	25	16.6 %

Note. $X^2 = 6.384$

N = 151

df = 6

p = .382

Gender/Day of the Week MWH

A chi-square test was done to determine if there was a difference in gender percentages of drug use incidents among the days of the week at MWH. The percentages of drug use incidents between females and males did not differ for the days of the week (see Table 23).

Table 23

Chi-Square Test of Independence Comparing GenderPercentages of Drug Use Incidents Among the Days of the Week
at MWH in 1992

Day	Female		Male	
	<u>n</u>	% of Incidents	<u>n</u>	% of Incidents
Sunday	17	18.1 %	9	15.8 %
Monday	15	16.0 %	6	10.5 %
Tuesday	15	16.0 %	11	19.3 %
Wednesday	9	9.6 %	4	7.0 %
Thursday	12	12.8 %	10	17.5 %
Friday	10	10.6 %	8	14.0 %
Saturday	16	17.0 %	9	15.8 %

Note. $X^2 = 2.293$

$N = 151$

$df = 6$

$p = .891$

Time of Admission MWH

A chi-square test was done to determine if there was a difference in the percentages of drug use incidents among daily time blocks at MWH. Percentages of incidents differed among the time blocks at MWH in 1992, $X^2 (5, N=151) = 26.497, p < .001$. The highest percentage of admissions was associated with the 1600-1959 time period. The lowest percentage of admissions was associated with the 0400-0759 and 0800-1159 time periods (see Table 24).

Table 24

Chi-Square Goodness-of Fit-Test Comparing Time Block
Percentages of Drug Use Incidents at MWH in 1992

Time	<u>n</u>	% of Incidents
0000-0359	23	15.2 %
0400-0759	12	7.9 %
0800-1159	13	8.6 %
1200-1559	31	20.5 %
1600-1959	42	27.8 %
1000-2359	30	19.9 %

Note. $X^2 = 26.497$

N = 151

df = 5

p < .001

Gender/Time Blocks MWH

A chi-square test was done to determine if there was a difference in the percentages of female and male incidents for the time blocks. Percentages of female and male incidents did not differ among the time blocks (see Table 25).

Table 25

Chi-Square Test of Independence Comparing GenderPercentages of Drug Use Incidents Among the Time Blocks at MWH in 1992

Time	Female		Male	
	<u>n</u>	% of Incidents	<u>n</u>	% of Incidents
0000-0359	12	12.8 %	11	19.3 %
0400-0759	8	8.5 %	4	7.0 %
0800-1159	11	11.7 %	2	3.5 %
1200-1559	17	18.1 %	14	24.6 %
1600-1959	29	30.9 %	13	22.8 %
1000-2359	17	18.1 %	13	22.8 %

Note. $X^2 = 5.809$

N = 151

df = 5

p = .325

Gender/Drug Type MWH

A chi-square test was done to determine if there was a difference between the percentages of female and males who used a specific drug at MWH in 1992. Males were more likely to use alcohol in combination than females (43.9% vs. 24.5%). Males were more likely to use cocaine than females (17.5% vs. 2.1%). No gender differences were found with the other drugs, as shown in Table 26.

Table 26

Chi-Square Test of Independence Comparing the Gender
Percentages of Drug Use Incidents for Presence and Absence of
Specific Drugs at MWH in 1992

Drug	Females		Males	
	<u>n</u>	% of Incidents	<u>n</u>	% of Incidents
Alcohol combined	23	24.5%	25	43.9% *
Marijuana	19	20.2%	15	26.3%
Acetaminophen	10	10.6%	2	3.5%
Cocaine	2	2.1%	10	17.5% **
Tylenol	7	7.4%	1	1.8%
Amphetamines	4	4.3%	3	5.3%
Benzodiazepines	6	6.4%	1	1.8%

Note. * $X^2 = 6.154$

N = 151

df = 1

p = .013

** $X^2 = 11.528$

N = 151

df = 1

p = .001

Drug Type MWH/DAWN

Chi-square tests were done to determine if there were differences among the most frequently used drugs at MWH and those most frequently reported to DAWN in 1992. There were differences in the percentage of drug use between MWH and DAWN for the use of marijuana, cocaine, amphetamines, and heroin (see Table 27).

Table 27

Chi-Square Tests of Independence Comparing MWH and DAWN
Percentages of Specific Drugs Used in 1992

Drug	MWH	DAWN	Chi-Square	p value
Alcohol in comb	31.8%	32.7%	0.058	.810
Marijuana	21.9%	5.5%	76.794	<.001
Acetaminophen	7.9%	7.2%	0.115	.735
Cocaine	7.9%	27.7%	29.287	<.001
Tylenol	5.3%	not listed		
Amphetamines	4.6%	0.9%	25.349	<.001
Benzodiazepines	4.6%	1.7%	8.195	.004
Aspirin	3.3%	4.3%	0.388	.533
Heroin	0.0%	11.1%	18.802	<.001

Note. DAWN percentages are based on weighted estimates.

N = 433644

Drug Type MWH/MINI-DAWN

A chi-square test was done to determine if there was a difference between type of drug used most frequently by clients who entered MWH in 1992 and those drugs most frequently reported to MINI-DAWN. There were differences between the percentage of drugs used at MWH and MINI-DAWN for the drugs marijuana and acetaminophen (see Table 28).

Table 28

Chi-Square Tests of Independence Comparing MWH and MINI-DAWN Percentages of Specific Drugs Used in 1992

Drug	MWH	MINI-DAWN	Chi-Square	p value
Alcohol in comb	31.8%	31.3%	0.018	.894
Marijuana	21.9%	3.2%	107.591	<.001
Acetaminophen	7.9%	2.7%	12.650	<.001
Cocaine	7.9%	6.2%	0.708	.400
Tylenol	5.3%	8.3%	1.667	.197
Amphetamines	4.6%	not listed		
Benzodiazepines	4.6%	not listed		
Xanax	4.0%	5.9%	0.969	.325
Aspirin	3.3%	6.6%	2.681	.102
Prozac	3.3%	4.9%	0.759	1.000

Note. N = 1891

Summary

These analyses indicated a significant difference between percentages of incidents at MWH in the three diagnoses groups. The highest percentage occurred in the drug overdose group. There was a significant difference in the age groups of MWH clients, with the highest percentages in the 6-18 group and 30-

54 year age groups. There was a significant difference in the age group percentages of incidents at MWH and DAWN, with the largest differences in the 6-17 year age group. There was a significant difference in the age group percentages of incidents at MWH and MINI-DAWN, with the largest differences in the 6-18 year group and 19-29 year group.

There was a significantly larger percentage of female incidents at MWH than male. Female and male incidents differed significantly in the various age groups at MWH. The largest percentage of females in the 19-29 age group. The largest percentage of males was in the 6-18 age group. A significant difference in the percentage of female and male incidents in the diagnoses categories was present as well. Females were more likely to present with drug overdose, and less likely to present with drug abuse.

There was a significant difference in the percentage of female and male incidents between MWH and DAWN. A higher percentage of female incidents occurred at MWH than was reported to DAWN. There was no significant difference in the percentage of female and male incidents between MWH and MINI-DAWN.

Further, there were no significant differences between drug use incidents at MWH and the seasons of the year, male and female incidents in the season of the year, moon phase

drug use incidents, male and female incidents and the phase of the moon, incidents and day of the week, or percentage of female and male incidents and the days of the week.

There was a significant difference in the percentage of incidents and time of entry. The highest entry time was in the 1600-1959 hours time period. There was no significant difference between female and male percentage of incidents and the time periods.

Males were significantly more likely to use alcohol in combination and cocaine than females at MWH. MWH had a significantly higher use of marijuana and amphetamines than was reported to DAWN. DAWN reported a significantly higher use of cocaine and heroin than was seen at MWH. Marijuana and acetaminophen incidents were significantly higher at MWH than reported to MINI-DAWN.

CHAPTER FIVE

Discussion, Implications, Limitations, and Recommendations

Discussion of Findings

The medical records of 151 clients admitted to MWH emergency department in 1992 were reviewed. This review was undertaken to describe the drug use incidents, other than those for alcohol exclusively, at MWH emergency department and compare those data with DAWN and MINI-DAWN when available. In 1992, 0.74% of all emergency department admissions to MWH were related to documented drug use, with the exclusion of alcohol when used alone. This percentage was not as high as the 1.7% drug overdose rate reported by Soslow (1981). It was also lower than the 1%-2% emergency admission rate for drug overdose cited by Stein et al. (1993). It was higher than the 0.50% drug abuse episodes reported to DAWN in 1992.

MINI-DAWN does not include the total number of emergency department admissions statewide, and therefore, does not project the percentage of statewide emergency department drug admissions. The differences reported among these agencies may be due to medical record personal interpretation when placing the medical diagnosis within an ICD-9 code. Differences may be due to the secretarial staff interpretation of diagnosis when retrieving DAWN data from

the medical record to submit to DAWN. The actual medical diagnosis placed on the record may vary depending on specific physician, institution, or diagnosis in relation to reimbursement.

This researcher obtained information from drug screens as well as medical records which the secretarial staff reporting to DAWN would not have access to. Clients come to the emergency department with physical complaints or from accidents which are drug related while the drug use is never revealed to the medical staff. Those incidents are not recorded in the diagnosis and are not available for data collecting. If all these incidents were known the percentages would be much higher. There are times the drug use may be admitted by the client but is not listed as a diagnosis by the physician and would not enter into data collecting. There are incidents of drug seeking behavior demonstrated by clients coming to the emergency department, which may be diagnosed as another condition. All of these contribute to differences in drug use percentages and percentages which are lower than would be expected if all drug use were known in clients which arrive in the emergency department.

This study found prescription drugs to be the source of abused drugs in 45% of the drug mentions. Similarly, MINI-DAWN found prescription drugs to be involved in 48% of drug

episodes. No comparison could be made to DAWN data for 1992 because prescription drug use was not included for 1992. The mention of the nonmedical use of prescription drugs at MWH was even higher than the mention of alcohol in combination. This should be a concern for all physicians prescribing drugs. The role of preventive medicine and wellness promotion could be instrumental in limiting prescription drugs. Limiting the number of pills per prescription is important for physicians to consider and well as limiting refills.

This study divided drug use into three categories, identified by ICD-9 code, drug abuse, drug overdose, and drug dependency. The percentages of incidents in the three groups differed significantly ($p < .001$), at MWH in 1992. The largest percentage of incidents was in the drug overdose category (61.6%). DAWN reported in 1992 that overdose was the reason for 54% of all drug abuse episodes admitted to the emergency department, which is slightly lower than MWH incidence. MINI-DAWN reported in 1992 that overdose was the reason for 81.7% of drug abuse episodes, which is higher than MWH incidence. It would be expected that drug overdose admissions to the emergency department would be greater than drug abuse or drug dependency due to the necessary expediency of care needed by the drug overdose client to prevent toxicity or

death. Drug abuse and drug dependency clients may be more likely to enter outpatient or chemical dependency units rather than the emergency department.

The mean age of drug use clients at MWH was 27.2 years. This finding was similar to Stern et al. (1991) who reported the mean age of drug users to be 28 years. This finding differed from the mean age of 33 years reported by Harsh and Holt (1988), the mean age of 34.3 years reported in 1979, and the mean age of 35.6 years reported in 1989 by Stein et al. (1993), and the mean mortality age which ranged from the mid-thirties to the early forties reported by Harlow (1991). The difference in ages may be due to the time of the studies. The MWH study and Stern (1991) study were conducted at a later date than the other studies. There may be a trend toward younger drug users.

Clients at MWH were divided into four age categories. The percentage of clients in the four age groups differed significantly ($p < .001$). The largest percentage of incidents (33.8%) was in the 6-18 year group and the 30-54 year age group (39.7%). The smallest percentage was in the 55-99 year group (3.3%). Stern et al. (1991) did not have age categories similar to this study, but found 23% of drug use clients to be 19 years of age or less. The percentage rate at MWH was higher in the 6-18 year group than was reported by Stern et al. (1991).

The high percentage rate of clients age 6-18 should be alarming for a mid sized hospital. The number of young drug users demonstrates the problem youth are now having with drugs.

DAWN material indicated 11.1% of drug incidents involved clients in the age group 6-17 years. The MWH data indicated a higher incidence of 31.8% in the same age range. DAWN reported 22.3% incidence in the age category 18-25 years. MWH had a similar 20.5% incidence rate in that age group. DAWN reported 30.9% incidence rate in the 26-34 age group, MWH had a lower incidence rate of 21.2% in that group. DAWN reported 35.7% incidence rate in the 34-99 age group. MWH reported a lower 26.5% incidence rate in the 34-99 year group. "Emergency room drug episodes" (1993), and Kopstein (1993) indicated DAWN had increasing numbers of reported incidences in the 26-54 age groups in 1992. Major metropolitan hospitals largely report to DAWN which would indicate a different population from the midsized hospital this study was based on. Perhaps the metropolitan areas have higher stress for middle aged people which may lead to increased drug use. Perhaps metropolitan areas have more programs in place for youth with drug problems so the emergency department is not used as often. The metropolitan

youth may have other ways of seeking assistance rather than the emergency department, or avoid seeking assistance.

There was a higher percentage of incidents in the 6-18 year group at MWH (33.8%), compared to MINI-DAWN (21%). There was a higher percentage of drug use incidents in the 19-29 age group reported to MINI-DAWN (36%) than was found at MWH (23.2%). The percentage of incidents in the age groups 30-54 years and 55-99 years were similar between MWH and MINI-DAWN. MINI-DAWN secures data from all of Iowa. The fact that MWH is in a metropolitan area of Iowa may indicate why the percentage is higher at MWH than all reporting hospitals combined. When looking at all of Iowa the use of drugs seem to increase at the college age level.

Age and gender of drug use clients entering MWH emergency department in 1992 were studied. There was a smaller percentage of females than males in the 6-18 year group, but a larger percentage of females than males in the 19-29 year group and in the 30-54 year group. The percentage of incidents involving females (62.3%) at MWH , was higher than the percentage of males (37.7%). MINI-DAWN for 1992 reported similar percentages (female 61% vs. male 39 %). Smaller percentages of females in the 6-18 age group suggest that females may not be as likely to explore with drugs

at as early an age as males. Young males may be thrill seekers or more likely to succumb to peer pressure in the use of drugs.

Females at MWH were more likely to use drugs between the ages of 19-54 years. Females may be more sensitive to stress in committed relationships at this age. There is increased stress on career women who have often become the only financial support for the family in the case of separation or divorce. There is additional stress for females who have a career, family, household responsibilities, and seeking further education to maintain the career. Increased stress for women ages 19-54 years may lead to increased drug use.

Frierson and Lippmann (1990), Stein et al. (1993), Kopstein (1992) and Harlow (1991) all reported that females overdosed more often than males. Harsh and Holt (1988) found more females (67%) overdosed on antidepressants than males (33%). Derby et al. (1992) found more females (43%) committed suicide by overdose than males (16%). MINI-DAWN (1992) reported more females (61%) were involved in drug use incidents than male (39%). Female drug overdose at MWH was 70.2% and male overdose was 47.4%. This was consistent with other findings. Females are more likely to overdose on drugs to cope with stress or to commit suicide whereas, males may act out in other ways or use other means to attempt suicide.

There was a higher percentage of total drug use incidents involving males reported to DAWN (51% male vs. 49% female) for 1992 than in either the MWH sample (37.7% male vs. 62.3% female) or MINI-DAWN data (39% male vs. 61% female). Harlow (1991) found the mortality rate from narcotics and cocaine overdose to be three times higher for males than females. Similarly, Blanc et al. (1993) found 2/3 cases of poisoning and drug overdose to be male, while Kopstein (1992) found more male incidents of cocaine related cases than female. Finally, Colliver and Kopstein (1991) utilized DAWN material and found males were 2 times more likely than females to have emergent cocaine related episodes. Nationwide there may be an increasing number of male drug users. Perhaps the increasing number of cocaine and heroin users (which are predominantly male) are driving up the male statistics. Perhaps the midwest has not yet experienced this increase. This may be an opportunity for early intervention in the midwest.

Information gathered on drug use incidents in the emergency department at MWH in 1992 indicated no significant difference in percentage of drug use incidents in regard to the days of the week. The percentage of female and male incidents did not differ significantly in regard to days of the week. In contrast, Morris (1987) who looked at drug

overdose in regard to days of the week found white males were more likely to be involved with drug overdose on Monday and Friday while females showed no preference for day of the week. Increased drug use on Monday and Friday would be consistent with expected increased drug use on the weekend. The fact that drug use was consistent throughout the week at MWH indicates it is not used just for weekend pleasure or weekend experimenting but used routinely.

The MWH sample demonstrated no significant difference in the percentage of drug use incidents in regard to the seasons of the year, while Morris (1987) found the highest incidence of drug use emergency admissions in July. There was no difference in the percentage of seasonal female and male drug use incidents at MWH in 1992. Morris (1987) found drug use incidents increased for males in early August and for females in late May. The Morris study was conducted eight years ago. Perhaps at that time there was more experimenting in the summertime. Currently, drugs may be more readily accessible all year around.

Data from MWH in 1992 indicated no difference in drug use incidents during the different moon phases. No other studies of moon phase and emergency department drug use incidents were found to compare with these data. There is

often speculation about increased drug use during the full moon phase. This study shows no basis for that belief.

The peak arrival time for drug use incidents at MWH during 1992 was 1600-1959 hours (27.8%). In contrast, Soslow (1981) found the peak arrival time between 2200-2359 hours. At MWH 47.7% of all drug use incidents occurred during 1600-2359 hours. Similarly, Stern et al. (1991) found 41% of intentional and accidental drug overdoses arrived between 1600-2359 hours. Stern et al. (1991) found 31% overdose admissions arrived between 0000-0800 hours. MWH had a smaller percentage of incidents (23.1%) during that time. The lowest admission time at MWH was 0400-0759 hours. There were no other research studies to compare with the MWH data on lowest admission time. The percentage of female and male drug use admission time did not differ at MWH. There were no other data to compare with MWH data on female and male admission time. The drug use admission time was consistently in the evening for all studies. This would be consistent with most persons being home from work and a wakeful time. It is also a time of less structured activity for most people which allows stressors to surface and influence the individual. Some people may find the less structured time lonely or depressing and seek an alternative to those feelings.

The highest incidence of specific type of drug use at MWH in 1992 involved alcohol in combination (31.8%). Stein et al. (1993) found alcohol commonly used in drug combinations, but reported no percentages. Harsh and Holt (1988) found a higher percentage (56%) used alcohol in combination. DAWN and MINI-DAWN reported similar findings in 1992. DAWN reported 32.7% alcohol in combination use and MINI-DAWN reported 31% alcohol in combination use. Alcohol alone is well known to be the drug which is most often abused. The fact that it is also the the most often used specific drug of abuse in combination with other drugs attests to the immense problem of alcohol consumption.

The specific drug involved in the second highest (21.9%) incident rate at MWH in 1992 was marijuana. "Emergency room drug episodes" (1993) reported a 48% increase in marijuana/hashish mentions to DAWN in 1992. Even with the increase reported to DAWN the incidents at MWH were significantly higher ($p < .001$) than DAWN reported (5.5%) for the same year. MINI-DAWN reported (3.2%) significantly fewer ($p < .001$) incidents than MWH. Currently, marijuana is a drug frequently sought after in the MWH area. It may be highly accessible and inexpensive in the MWH area.

The third most commonly mentioned drug at MWH in 1992 was acetaminophen with 7.9% incident mentions. Stein et

al. (1993) reported the second most commonly used overdose drug in 1979 was acetaminophen. Blanc et al. (1993) reported acetaminophen was a commonly used drug in overdose. DAWN reported a similar (7.2%) incident rate. MINI-DAWN reported 2.7% incidents involved acetaminophen which is significantly ($p < .001$) fewer than MWH. Acetaminophen is highly accessible and most people are unaware of its high toxicity. It may be seen as a relatively harmless drug for those who overdose as a suicidal gesture without intent to commit suicide.

Cocaine was involved in 7.9% incidents at MWH in 1992. Stein et al. (1993) found in 1989 eleven percent of overdoses involved cocaine. Blanc et al. (1993) found cocaine to be a commonly used drug. DAWN reported a significantly higher ($p < .001$) incident rate (27.7%) in 1992. Colliver and Kopstein (1991), Kopstein (1992), and "Emergency room drug episodes" (1993) confirmed the high cocaine incident rate of 28% reported to DAWN. Cocaine is perhaps not as widely used in the MWH area as it is in the metropolitan areas which report to DAWN. Even though, DAWN uses an estimated representative sample of the United States it may not reflect the use of cocaine in the MWH area. This indicates the need for local studies to establish information for specific areas which may not be represented in a large sample.

Tylenol was involved in 5.3% of drug use incidents at MWH in 1992. The brand name Tylenol was not listed as such in DAWN material for 1992. MINI-DAWN listed a similar 8.3% incident rate in 1992. Tylenol is easily accessible and inexpensive. The toxicity of Tylenol used in overdose is largely unknown to the general public. This drug may be viewed as relatively harmless by many and utilized in suicidal gestures.

Amphetamines were found in 4.6% of incidents at MWH in 1992. Amphetamines were involved in significantly ($p < .001$) fewer incidents reported to DAWN at 0.9%. Amphetamines were not listed in MINI-DAWN material. There is a need to list amphetamines in MINI-DAWN. MWH is a reporting hospital to MINI-DAWN so there is inconsistency in the incidents at MWH and the MINI-DAWN report. Amphetamines may be more widely used in the MWH area than in the large metropolitan areas.

Benzodiazepines were found in 4.6% incidents at MWH. Blanc et al. (1993) reported benzodiazepines were commonly used in 1990. Unspecified benzodiazepines accounted for 1.7% incidents reported to DAWN. Unspecified benzodiazepines were not listed for MINI-DAWN. The low reporting of benzodiazepines use may be due to the listing of specific brand prescription benzodiazepines rather than the generic form.

Heroin was not in the top 6 drugs mentioned at MWH nor in MINI-DAWN in 1992. This is in contrast to significantly higher ($p < .001$) incident rate of 11.1% reported to DAWN. Office of National Drug Control Strategy (1994), "Emergency room drug episodes" (1993), "Drug Emergencies Flood Hospital (1993) used DAWN data to confirm higher incidents of heroin in 1992 from previous years. Heroin may not be used as extensively in the MWH area as larger metropolitan areas. Representative estimates from DAWN do not necessarily reflect drug use in specific localities.

Xanax, a specific benzodiazepine, was used in the top six drug incidents reported to MINI-DAWN, but was not among the top six for MWH or DAWN. Aspirin was used in the top six drug incidents for DAWN and MINI-DAWN but was not among the top six at MWH. Prozac, an antidepressant, was used in the top six drug incidents for MINI-DAWN, but was not among the top six for MWH or DAWN. Specific drug incidents may not reflect actual drug use because some drugs are listed by generic name and others by brand name, making the data inconsistent.

Implications for Professional Nursing

This study has implications for nursing practice, nursing education, nursing administration, and nursing research. Different aspects of the study can be utilized in each area.

Nursing Practice

Utilizing Orem's conceptual framework of nursing, drug use clients arrive to the emergency department in various states of self care deficit. The self care deficits continue in the other units to which the client is referred for definitive care. Nurses help fulfill self care requisites when clients are unable to provide for their own self care. Depending on client needs all levels of nursing systems, either wholly compensatory, partly compensatory, or supportive educative can be provided. Nurses provide only the care the individual is not able to provide for self. As quickly as possible the client is guided into self care skills and the role of the nurse becomes partly compensatory or supportive educative.

This study provides drug use profile information for the MWH emergency department nurse and other nursing personal. It provides the nurse with information enabling better utilization of the specific nursing system necessary to meet the needs of the client. Drug use incidents are likely to involve drug overdose at MWH. Prescription drugs, alcohol in combination, and marijuana are likely to be mentioned in drug use incidents. The mean age is likely to be 27 years of age. More females are likely to present than males. Females are more likely to present with drug overdose and males are more likely to present with drug abuse. A higher percentage of

males age 6-18 years present with drug use than any other age group. The highest percentage of drug use females presenting are in the 30-54 year age group. The seasons of the year, moon phase, day of the week are not important factors in drug use incidents at MWH. Clients with problems of Drug use are likely to present to the emergency department between 1600-1959 hours. Males are more likely to present with incidents of alcohol in combination and cocaine use. This information can be used to better prepare the emergency department nurse for anticipated drug related incidents. where depending on the clients self care deficit and willingness to accept help, wholly compensatory, partly compensatory, and supportive educative nursing systems are utilized. The nursing systems continue in extended care and rehabilitation units where nurses care for clients in a manner clients would care for themselves if they were healthy enough to do so. Clients are held responsible for recovery. Nurses take a supportive educative role as quickly as possible allowing the client to become self directive

Education

Information from the study can be utilized in a supportive educative manner with drug use clients by nursing personnel to help the client with decision making, behavior control and teaching about times of vulnerability when

increased support might be necessary. Information obtained from this study can be utilized in an educative manner to familiarize new staff concerning the profile of drug use clients. It can be utilized to educate intensive care personal, medical unit personal, mental health, and drug rehabilitation personal concerning drug use clients most likely to arrive from the emergency department. The information can be helpful in educating parents concerning gender, age, and drug preferences. Occupational health nurses can utilize this information to educate employees. Nurse educators can utilize the information to provide additional information to student nurses concerning drug use. Considering the percentage of young drug users school nurses need to be actively involved in educating youth and parents.

Research

Research by nurses concerning drug use incidents in the emergency department is lacking. In this study a profile of the drug use client was more clearly defined so nurses can more effectively identify care needs. This study contributed to research on the local level concerning drug use which may be different and more useful than national samples. This study contributed to the concept of using Orem's conceptual model of nursing as a framework for care of the drug use client.

Administration

The results of this study can help hospital administration anticipate staffing needs as nursing system requirements change to meet the self care requisites of drug use clients. It can be helpful in planning staffing and on call possibilities for the various shifts. Knowledge of drug use prevalence can help administration justify increased budgeting costs for computer information on drugs, and supplies needed to care for drug use clients. Cuts in mental health budgets forces hospital administrators to more effectively distribute existing funding. Gaining information about the drug user profile is helpful in planning and budgeting for effective and efficient programs.

Limitations of Study

This study utilized ICD-9 codes to retrieve specific medical records. Clerical medical record staff initially read the medical diagnosis on the record, interpret the diagnosis and place it within an ICD-9 code. There may be differences in interpretation of diagnosis leading to errors in ICD-9 placement and ultimately retrieval of records with drug use as the recorded diagnosis.

The medical diagnosis was used to obtain drug use records and information. There may be emergency department admissions involving drug use which was not diagnosed by the

physician as such. Therefore, all drug use incidents may not have been obtained.

Clients may not be truthful about drug use or may arrive with drug seeking behavior using physical complaints. The physical complaints may be addressed without drug use speculation in the diagnosis. Physicians may choose not to address the drug use possibility and choose to diagnose a medical condition only. All of these cases would lead to an inaccurate number of drug use incidents in the emergency department.

Drug screen information, when available, was used in this study but was not used in reporting DAWN or MINI-DAWN information. This may account for some inconsistency between MWH, DAWN, and MINI-DAWN data in regard to amphetamine use.

Recommendations for Further Research

Recommendations for further research include extending the study over a longer time period or at several year intervals to establish trends, comparing urban drug use incidents to rural hospital incidents, and comparing public and private hospital drug use. Recommendations also include studying the prescription drug use incidents compared to illicit and over the counter drug use. Further investigation of the amount of care

and time required in fulfilling wholly compensatory, partly compensatory, and educative supportive nursing is indicated.

Conclusions

This research was based on Orem's conceptual framework of nursing. It was a descriptive study designed to identify and describe drug use incidents at MWH emergency department during 1992. The age, gender, temporal patterns and type of drug(s) used were identified. A comparison of MWH data was made with DAWN and MINI-DAWN when available. The profile of a drug use client at MWH emergency department was identified. This study provides information which can be used by nurses to enhance and alter Orem's theoretical framework inspiring continued research in the area of nursing practice, education and administration.

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APPENDICES

Appendix A

HSRR: 8/18/93

*To be completed by the Investigator:*Date Submitted: August 1, 1994Proposal Title: Drug Use Incidences Recorded in a Midwestern EmergencyInvestigator: Shirley Hartwig, R.N. Department 964-1089Faculty advisor: (for student research): Marion Hemstrom, D.N.Sc. Dept. Dept. of NursingReturn to: Marion Hemstrom
Name220 Olin Hall
Street Address of Campus Office
City, State, Zip (if off campus)*To be completed by the Human Subjects Research Review Committee Chair:*Date received: 9-8-94

Decision:

- ☒ Approval, no risk
- ☐ Approval, minimum risk
- ☐ Approval, subjects at risk, but benefits outweigh risks
- ☐ No approval. Subjects at risk or proposal does not adequately address risks, benefits or procedures.

Reasons for Disapproval: _____

Suggested Changes: _____

_____HSRRC Chair: H. H. ClephamDate: 10-2-94

Final Notification Form

Appendix B

PERMISSION TO CONDUCT RESEARCH AT
IOWA LUTHERAN HOSPITAL

Permission has been granted to Shirley L. Hartwig (investigator) use the following resources at Iowa Lutheran Hospital:

1. Subjects-

N/A

2. Patient Care Units-

N/A

3. Physical Resources-

4. Comments:

Retrospective Medical Record review, 1992 Data
ER admissions with ICD-codes 305.00 - 305.90
900.00 - 999.00
304.00 - 304.60

SIGNATURES OF NURSING ADMINISTRATION:

Director, Nursing Practice: Doormany Mullin, RN Date: 7/25/94

Section Director(s):

Jeresa Shields Date: 7/25/94

Department Head(s):

Date: _____

Date: _____

Date: _____

Appendix C

[illegible]